As explained previously, the projector 560 (Fig. 4) *employs a plurality of single crystal silicon light valve matrices and an optical geometry for producing high resolution color (or monochrome) images. The resulting images are directed through a zoom or fixed focal length projection lens 572 to form an image beam capable of being front or back projected onto a viewing surface or screen.*

Projectors used for presentations in conference rooms or auditoriums are directed from a central location to project a computer image towards a reflective non-transmissive screen, reflecting the projected image from the non-transmissive reflective screen to the audience and not to the presenter or presenter's location having operational access to the projector or the computer connected to the projector. Gale et al does anticipate a projector and a non-transmissive screen. Gale et al does not anticipate a new method of creating a projection monitor based on reflecting the computer image from the non-transmissive reflective screen towards the first operator location. A first operator location arranged in proximity to the positioning of the projector itself within the personal workspace having a spatially confined area.

Gale et al in view of Rohr does not anticipate positioning a projector on an adjustable arm as part of a new method of creating a projection monitor based on reflecting the computer image from the non-transmissive reflective screen towards the first operator location.

Gale et al does not anticipate a new method of operating a computer system based on reflecting the computer image from the non-transmissive reflective screen towards the first operator location.

Gale et al does anticipate a personal workspace. Gale et al teach of a using their invention, a rear projection monitor, on a desk (Gale et al Col 2, line 24-29).

Another objective of the invention is compactness. In order to minimize the size, and preferentially the depth of the unit (by this we mean the distance front to back of the system so that it can readily fit on a persons desk and not cover an excessive amount of the desk surface) the optical system inside the enclosure is folded.

This anticipates an operator location near the desk, as well as a personal space to do work. Gale et al does not anticipate positioning a front projector on a desk as part of a new method of creating a projection monitor.

Gale et al in view of Rohr does not anticipate mounting a front projector onto an adjustable arm connected to a desk as part of a new method of creating a projection monitor.

Gale et al does not anticipate a new method of operating a computer based on a front projector positioned on a desk.

Beckman et al U.S. Patent No. 3,728,801 titled "Audio-Visual Teaching Unit" is a form of projection monitor, a personal rear projection monitor. Beckman et al does not teach, suggest, or anticipate directing the projector to project a computer image away from the first operator location towards the non-transmissive reflective screen.

The Office Action dated December 4, 2002 has been reviewed and its contents carefully noted. The remarks below were faxed to the Examiner as a Proposed Amendment on February 7, 2003 and are included here to support the reasons set forth at the interview on February 24, 2003. Reconsideration of this application is respectfully requested. Claims 3, 4, 5, 6, 14, 15, 16, 17, 18, 24, and 30 remain in this application.

Rejection(s) under 35 U.S.C. § 102

Claims 3, 4, 5, 6 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Gale et al (US 5692820).

Re Claim 3: The projection monitor of Gale et al can serve as the monitor for a personal computer or workstation (Gale et al Col 7, line 35-45). For the personal computer or workstation application, Gale et al is anticipating a first operator location in proximity to the projection monitor of Gale et al. Gale et al discloses a projector having at least one video input (Gale et al Col 7, line 32) for accepting a display signal from a connected computer (Gale et al Col 7, line 40), capable of creating a projected computer image based on the display signal.

Gale et al teach that their projection monitor is designed to be compact and the degree of space optimization is such that it should fit on an office desk (Gale et al Col 2, line 28). However, Gale et al does not teach, suggest or anticipate arranging a, spatially confined, personal workspace, as taught by the inventor, for the projection monitor of Gale et al

because personal workspace of the inventor is based on a non-transmissive reflective screen. Gale et al employ a transmissive screen in their projection monitor.

Gale et al teach that their projection monitor consist of an enclosure housing an imaging system, projection optics and viewing screen (Gale et al Col 1, line 65-67) to form a rear projection monitor. There is extensive description of the depth of the monitor enclosure relative to the viewing screen (Gale et al Col 3, line 11-17). Depth is a good measure of how much desktop real estate is required. This kind of competitive desktop usage analysis taught by Gale et al can only be applied to a rear projection monitor, reinforcing the teaching that the Gale's invention is a rear projection application. A projection system typically includes the imaging system and projection optics. Gale et al illustrate and teach that various projection systems can be applied to the principles of Gale's invention with the enclosure and viewing screen to create a rear projection monitor: Fig. 1; Fig. 2; Fig. 3; Fig. 4; Fig. 6; and Fig. 7. These systems vary in the number and type of imaging units designed (3 imaging units color design, Enhanced multi-imaging units resolution design...) and optics designed (1-mirror, 2-mirror compact optical path design...). One key difference between projection system of Gale et al and a projector (Gale et al Fig. 4) is in the lens system (Gale et al Col 6, line 54). Gale et al were helping us better understand the different types of projection systems used in Gale's invention by illustrating the principal difference between a common projection system of Gale's monitor and a projector (Gale et al Fig. 4). It is also important to note, Gale et al further teach that a projector may have the capability to create either a front or rear projection image (Gale et al Col 6, line 50-56). Gale et al are anticipating that a projector can be adapted for Gale's invention with an enclosure and a viewing screen in a rear projection application. Gale et al does not teach, suggest or anticipate a new method of creating a projection monitor based on directing a projector to project a computer image away from the first operator location and towards a non-transmissive reflective screen.

Again, Gale et al further teach that a projector can have the capability to create either a front or rear projected image (Gale et al Col 6, line 50-56). Gale et al do not teach, suggest or anticipate that a screen is capable of being front and back projected. Gale et al do not anticipate of a screen technology that could either be used in front and rear

projection applications with or with out modifications. Gale et al teach of transmissive screen technologies like in Fig. 8E and Fig. 8D (Gale et al Col. 12, line 19-34).

All these projection systems of Gale et al are designed for a rear projection monitor application. In this application, the viewing screen can take a number of forms (Gale et al Col 2, line 15-17), but all these forms have to be based on a transmissive screen technology in order to render an image visible (Gale et al Col 2, 1-3) to the viewer in a rear projection monitor application. Gale et al does not teach, suggest or anticipate for a new method of creating a projection monitor based on reflecting a computer image from the non-transmissive reflective screen towards the first operator location within the personal workspace. Therefore, reconsideration and withdrawal of the rejection of claim 3 is respectfully requested.

In light of these new supporting arguments for independent claim 14, dependent claims 4, 5, and 6 being dependent upon and further limiting the independent claim, should also be allowable for that reason, as well as the additional recitations they contain. Reconsideration and withdrawal of the rejections is respectfully requested.

Re Claim 4: A non-transmissive reflective screen is being used as the base of the construct to initially define a spatially confined personal workspace. Gale et al does not teach, suggest or anticipate arranging the personal workspace as defined by the inventor because Gale et al use a transmissive screen and not a non-transmissive reflective screen. Gale et al teach that their projection monitor is designed to be compact and the degree of space optimization is such that it should fit on an office desk. In addition, personal workspace construct is a model that can be applied to multiple personal workspaces in the same room with non-transmissive reflective screen starting to delimit each separate spatially confined area, where additional barriers may exist to further delimit each personal workspace. Therefore, reconsideration and withdrawal of the rejection of dependent claim 4 is again respectfully requested.

Re Claim 5: Projector used in presentations at conference rooms and auditoriums do not provide operational access to the audience, and even the presenter is required to carry a

remote control or has to travel physically to the projector or connected computer from where he is standing to face his audience. It is often that the presenter that has immediate operational access from his position facing the audience to the computer and not the projected image on the screen. Gale et al does not teach, suggest or anticipate the inventor's projection monitor having operational access to either the computer or projector, while being positioned to view a projected image on a non-transmissive reflective screen from the first operator location, within the personal workspace. Therefore, reconsideration and withdrawal of the rejection of dependent claim 5 is again respectfully requested.

Re Claim 6: Gale et al describe placing a rear projection monitor with an enclosure housing the rear projection system and a transmissive viewing screen on the desk (Gale et al Col 2, lines 7-9). Gale et al are not teaching, suggesting or anticipating to place a projector on a planar work surface that could be directed to a non-transmissive screen that is preferred not to be connected to either the projector or planar work surface. Therefore, reconsideration and withdrawal of the rejection of dependent claim 6 is again respectfully requested.

Re Claim 24: This claim is based on an eyestrain reduction method of operating a computer system. Eyestrain typically surfaces when the operator is working with the computer system and not just simply viewing the monitor for recreation or advertisement. Displays used for advertisement typically only provide operational access to the monitor if any access is permitted and not to the computer. This eyestrain reduction method states that the first operator location needs to have at least operational access to the computer, or the computer and the projector. Gale et al only state that their projection monitor is mounted on a desk (Gale et al Col 2, line 9), and Gale et al do not teach, suggest or anticipate to create a new eyestrain reduction method of operating a computer based on a first operator location having operational access at least to the computer connected to a projector.

Gale et al does not teach, suggest or anticipate a personal workspace, as taught by the inventor, having a spatially confined area because Gale et al use a transmissive screen in their projection monitor. The inventor defines the personal workspace based on the non-transmissive reflective screen. Gale et al does disclose a projection monitor designed to be compact and able to fit on a desk. Gale et al does disclose a computer capable of transmitting a display signal to a projector (Gale et al Col 7, line 30-50) having at least one video input (Gale et al Col 7, line 32) for accepting a display signal from a connected computer (Gale et al Col 7, line 40).

Gale et al does not teach, suggest or anticipate a new eyestrain reduction method of operating a computer based on projecting the computer image from the projector and away from the operator towards a non-transmissive reflective screen within the personal workspace. Instead, Gale et al teach that the their projection monitor consist of an enclosure housing an imaging system, projection optics and viewing screen (Gale et al Col 1, line 65-67) to form a rear projection monitor. There is extensive description of the depth of the monitor enclosure relative to the viewing screen (Gale et al Col 3, line 11-17). Depth is a good measure of how much desktop real estate is required. This kind of competitive desktop usage analysis taught by Gale et al can only be applied to a rear projection monitor, reinforcing the teaching that the Gale invention is a rear projection application. A projection system typically includes the imaging system and projection

optics. Gale et al illustrate and teach that various projection systems can be applied to the principles of Gale's invention with the enclosure and viewing screen to create a rear projection monitor: Fig. 1; Fig. 2; Fig. 3; Fig. 4; Fig. 6; and Fig. 7. These systems vary in the number and type of imaging units designed (3 imaging units color design, Enhanced multi-imaging units resolution design...) and optics designed (1-mirror, 2-mirror compact optical path design...). One key difference between projection system of Gale et al and a projector (Gale et al Fig. 4) is in the lens system (Gale et al Col 6, line 54). Gale et al were helping us better understand the different types of projection system used in Gale's invention by illustrating the principal difference between a common projection system of Gale's monitor and a projector (Gale et al Fig. 4). It is also important to note, Gale et al further teach that a projector may have the capability to create either a front or rear projection image (Gale et al Col 6, line 50-56). Gale et al are anticipating that a projector can be adapted for Gale's invention with an enclosure and a viewing screen in a rear projection application.

Again, Gale et al further teach that a projector may have the capability to create either a front or rear projection image (Col 6, line 50-56). Gale et al do not teach that a screen is capable of being front and back projected. Gale et al do not teach of a screen technology that could either be used in front and rear projection applications with or with out modifications. Gale et al teach of transmissive screen technologies like in Fig. 8E and Fig. 8D (Gale et al Col. 12, line 19-34).

All these projection systems of Gale et al are designed for a rear projection monitor application. In this application, the viewing screen can take a number of forms (Gale et al Col 2, line 15-17), but all these forms have to be based on a transmissive screen technology in order to render an image visible (Gale et al Col 2, 1-3) to the viewer in a rear projection monitor application. Gale et al do not teach, suggest or anticipate a new eyestrain reduction method of operating a computer based on reflecting the computer image from the non-transmissive reflective screen towards the operator at the first operator location in the personal workspace. Therefore, reconsideration and withdrawal of the rejection of claim 24 is respectfully requested.

Rejection(s) under 35 U.S.C. § 103

Claims 7-23 and 25-35 are rejected under 35 U.S.C. 102(e) as being unpatentable over Gale et al (US 5692820) in view of Rohr (US 4708312).

Re Claim 14: Gale et al does disclose a computer capable of transmitting a display signal to a projector (Gale et al Col 7, line 30-50) having at least one video input (Gale et al Col 7, line 32) for accepting a display signal from a connected computer (Gale et al Col 7, line 40). Gale et al does disclose a projector (Gale et al Fig. 4). Rohr does disclose an adjustable arm (Rohr Fig. 1) that could be connected to a table, a type of planar work surface (Rohr Col 3, line 58), providing support positioning in all directions with relative ease (Rohr Col 1, line 43) for a "video display apparatus or the like." The video display apparatus could be a CRT or even Gale et al projection monitor.

However, Gale et al in view of Rohr does not teach, suggest or anticipate a new method of creating a projection monitor based on directing a projector to project a computer image on the adjustable arm and away from the first operator location and towards the non-transmissive reflective screen, within the personal workspace.

Gale et al teach that the their projection monitor consist of an enclosure housing an imaging system, projection optics and viewing screen (Gale et al Col 1, line 65-67) to form a rear projection monitor. There is extensive description of the depth of the monitor enclosure relative to the viewing screen (Gale et al Col 3, line 11-17). Depth is a good measure of how much desktop real estate is required. This kind of competitive desktop usage analysis taught by Gale et al can only be applied to a rear projection monitor, reinforcing the teaching that the Gale invention is a rear projection application. A projection system typically includes the imaging system and projection optics. Gale et al illustrate and teach that various projection systems can be applied to the principles of Gale's invention with the enclosure and viewing screen to create a rear projection monitor: Fig. 1; Fig. 2; Fig. 3; Fig. 4; Fig. 6; and Fig. 7. These systems vary in the number and type of imaging units designed (3 imaging units color design, Enhanced multi-imaging units resolution design...) and optics designed (1-mirror, 2-mirror compact

optical path design...). One key difference between projection system of Gale et al and a projector (Gale et al Fig. 4) is in the lens system (Gale et al Col 6, line 54). Gale et al were helping us better understand the different types of projection system used in Gale's invention by illustrating the principal difference between a common projection system of Gale's monitor and a projector (Gale et al Fig. 4). Gale et al are teaching, suggesting or anticipating that a projector can be adapted for the rear projection system of Gale's monitor.

Again, Gale et al further teach that a projector may have the capability to create either a front or rear projection image (Col 6, line 50-56). Gale et al do not teach, suggest or provide motivation that a screen is capable of being front and back projected. Gale et al do not teach of a screen technology that could either be used in front and rear projection applications with or with out modifications. Gale et al teach of transmissive screen technologies like in Fig. 8E and Fig. 8D (Gale et al Col. 12, line 19-34).

All these projection systems of Gale et al are designed for a rear projection monitor application. In this application, the viewing screen can take a number of forms (Gale et al Col 2, line 15-17), but all these forms have to be based on a transmissive screen technology in order to render an image visible (Gale et al Col 2, 1-3) to the viewer in a rear projection monitor application. Gale et al does not teach, suggest or anticipate using a non-transmissive reflective screen as part of a new method of creating a projection monitor.

Gale et al does not anticipate arranging a personal workspace (Gale et al Col 2, line 28), as taught by the inventor, having a spatially confined area. The personal workspace is based on a non-transmissive reflective screen, unlike the transmissive screen of Gale's monitor. Gale et al teach of a compact design for their monitor, which is able to fit on a desk. Rohr does not teach, suggest or anticipate connecting the arm within a personal workspace, as taught by the inventor, and positioned in proximity to the first operator location. The table (Rohr Col 3, line 58) with or with out the adjustable arm (Rohr Fig. 1) could easily be located in a conference room or auditorium. Rohr teaches that in relation to the attached base of the adjustable arm a video display could be positioned in

all direction with relative ease (Rohr Col 1, line 9-10,43). This video display could easily be a theatre or presentation device. Rohr does not suggest, teach or anticipate connecting the attached base in proximity to the first operator location. A person of ordinary skill would not find it obvious using the invention of Gale et al in view of Rohr to arrange a personal workspace, at taught by the inventor, for a new method of creating a projection monitor based on a non-transmissive reflective screen.

Gale et al in view of Rohr does not suggest, teach or provide motivation to create a new display application using existing video display apparatus. The projection monitor of Gale is fundamentally the same display application on the adjustable arm of Rohr. The image size is still constrained by the size of the enclosure and transmissive screen regardless of the position of the arm. Using the invention of Gale in view of Rohr, it is not obvious for someone of ordinary skill to create a new projection monitor based on a projector mounted on an adjustable arm using a non-transmissive reflective screen, in an arranged personal workspace. Therefore, reconsideration and withdrawal of the rejection of claim 14 is respectfully requested.

In light of these new supporting arguments for independent claim 14, dependent claims 15, 16, 17 and 18 being dependent upon and further limiting the independent claim, should also be allowable for that reason, as well as the additional recitations they contain. Reconsideration and withdrawal of the rejections is respectfully requested.

Re Claim 15: A non-transmissive reflective screen is being used as the base of the construct to initially define a spatially confined personal workspace. Gale et al does not teach, suggest or anticipate arranging the personal workspace as defined by the inventor because Gale et al use a transmissive screen and not a non-transmissive reflective screen. In addition, personal workspace construct is a model that can be applied to create multiple personal workspaces in the same room with non-transmissive reflective screen starting to delimit each separate spatially confined area, where additional barriers may exist to further delimit each personal workspace. It is not obvious for one of ordinary skill using the invention of Gale et al in view of Rohr to arrange a personal workspace

based on a non-transmissive reflective screen. Therefore, reconsideration and withdrawal of the rejection of claim 15 is again respectfully requested.

Re Claim 16: Projector used in presentations at conference rooms and auditoriums do not provide operational access to the audience and even the presenter is required to carry a remote control or has to travel physically to the projector or connected computer from where he is standing to face his audience. It is often that the presenter has immediate operational access from his position facing the audience to the computer and not the projected image on the screen. It is not obvious for a person of ordinary skill using the invention of Gale et al in view of Rohr to develop a new method of creating a projection monitor having operational access to either the computer or projector supported by the adjustable arm from the first operator location facing the non-transmissive reflecting screen within the personal workspace. Therefore, reconsideration and withdrawal of the rejection of claim 16 is again respectfully requested.

Re Claims 17 & 18: It is not obvious for person of ordinary skill using invention of Gale et al in view of Rohr to develop a new method of creating a projection monitor based on connecting the adjustable arm either to the top or edge of planar work surface in order to place the projector on the supporting arm, with a preferably unconnected non-transmissive reflective screen to either the adjustable arm or planar work surface. Therefore, reconsideration and withdrawal of the rejection of claim 17 and 18 is again respectfully requested.

Re Claim 30: This claim is based on an eyestrain reduction method of operating a computer system with an adjustable arm. Eyestrain typically surfaces when the operator is working with the computer system and not just simply viewing the monitor for recreation or advertisement. Displays used for advertisement typically only provide operational access to the monitor if any access is permitted and not to the computer. This eyestrain reduction method states that the first operator location needs to have at least operational access to the computer, or the computer and the projector. Gale et al only state that their projection monitor is mounted on a desk (Gale et al Col 2, line 9), and consequently it is not obvious for a person of ordinary skill using Gale et al in view of Rohr to create a new eyestrain reduction method of operating a computer based on a first operator location having at least operational access to the computer connected to a projector, mounted on an adjustable arm, in proximity to the first operator location.

Gale et al does disclose a projection monitor designed to be compact and able to fit on a desk. Gale et al does disclose a computer capable of transmitting a display signal to a projector (Gale et al Col 30-50) having at least one video input (Gale et al Col 7, line 32) for accepting a display signal from a connected computer (Gale et al Col 7, line 40). Rohr does disclose an adjustable arm (Rohr Fig. 1) that could be connected to a table, a type of planar work surface (Rohr Col 3, line 58), providing support positioning in all directions with relative ease (Rohr Col 1, line 43) for a "video display apparatus or the like." The video display apparatus could be a CRT or even Gale et al projection monitor.

Gale et al teach that the their projection monitor consist of an enclosure housing an imaging system, projection optics and viewing screen (Gale et al Col 1, line 65-67) to form a rear projection monitor. There is extensive description of the depth of the monitor enclosure relative to the viewing screen (Gale et al Col 3, line 11-17). Depth is a good measure of how much desktop real estate is required. This kind of competitive desktop usage analysis taught by Gale et al can only be applied to a rear projection monitor, reinforcing the teaching that the Gale invention is a rear projection application. A projection system typically includes the imaging system and projection optics. Gale et al illustrate and teach that various projection systems can be applied to the principles of Gale's invention with the enclosure and viewing screen to create a rear projection

monitor: Fig. 1; Fig. 2; Fig. 3; Fig. 4; Fig. 6; and Fig. 7. These systems vary in the number and type of imaging units designed (3 imaging units color design, Enhanced multi-imaging units resolution design...) and optics designed (1-mirror, 2-mirror compact optical path design...). One key difference between projection system of Gale et al and a projector (Gale et al Fig. 4) is in the lens system (Gale et al Col 6, line 54). Gale et al were helping us better understand the different types of projection system used in Gale's invention by illustrating the principal difference between a common projection system of Gale's monitor and a projector (Gale et al Fig. 4). It is also important to note, Gale et al further teach that a projector may have the capability to create either a front or rear projection image (Gale et al Col 6, line 50-56). Gale et al are suggesting that a projector can be adapted for Gale's invention with an enclosure and a viewing screen in a rear projection application.

Again, Gale et al further teach that a projector may have the capability to create either a front or rear projection image (Gale et al Col 6, line 50-56). Gale et al do not teach, suggest or provide motivation that a screen is capable of being front and back projected. Gale et al do not teach of a screen technology that could either be used in front and rear projection applications with or with out modifications. Gale et al teach of transmissive screen technologies like in Fig. 8E and Fig. 8D (Gale et al Col. 12, line 19-34).

All these projection systems of Gale et al are designed for a rear projection monitor application. In this application, the viewing screen can take a number of forms (Gale et al Col 2, line 15-17), but all these forms have to be based on a transmissive screen technology in order to render an image visible (Gale et al Col 2, 1-3) to the viewer in a rear projection monitor application. Gale et al do not teach a new eyestrain reduction method of operating a computer based on reflecting the computer image from the non-transmissive reflective screen towards the operator at the first operator location in the personal workspace.

Gale et al does not anticipate arranging a personal workspace (Gale et al Col 2, line 28), as taught by the inventor, having a spatially confined area. The personal workspace is based on a non-transmissive reflective screen, unlike the transmissive screen of Gale's

monitor. Gale et al teach of a compact design for their monitor, which is able to fit on a desk.

Rohr does not teach, suggest or anticipate connecting the arm within a personal workspace and positioned in proximity to the first operator location. The table (Rohr Col 3, line 58) with or with out the adjustable arm (Rohr Fig. 1) could easily be located in a conference room or auditorium. Rohr teaches that in relation to the attached base of the adjustable arm a video display could be positioned in all direction with relative ease (Rohr Col 1, line 9-10,43). This video display could easily be a theatre or presentation device. Rohr does not suggest, teach or provide motivation to connect the attached base in proximity to the first operator location.

Gale et al in view of Rohr does not suggest, teach or provide motivation to create a new display application using existing video display apparatus. The projection monitor of Gale is fundamentally the same display application on the adjustable arm of Rohr. The image size is still constrained by the size of the enclosure and transmissive screen regardless of the position of the arm. A person of ordinary skill using Gale et al in view of Rohr would not find it obvious to create a new eyestrain reduction method of operating a computer in a personal workspace using a projector mounted on an adjustable arm with a non-transmissive reflective screen.

Re Claims 7-13, 19-23, 25-29 & 31-35: On page 7 of the office action dated December 4, 2002, the Examiner has made the following specific points regarding these claims:

> *It would have been an obvious matter of design choice to have the screen be a wall, the screen attached to a wall, supported by a planar work surface, the screen being a self standing reflective screen, or the screen being supported by the ceiling to ensure stationary placement of the image, since applicant has not disclosed that having the screen be a wall, the screen attached to a wall, the screen being a self standing reflective screen, or the screen being supported by the ceiling solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the disclosed screen being mounted in any fashion.*

As per the Examiner comments above, dependent claims 7-13, 19-23, 25-29 and 31-35 have been abandoned.

Inventor believes the claims, are patentable over the prior art, and that this application is now in condition for allowance of all claims therein. Such action is thus respectfully requested.

Respectfully submitted,

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